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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,466	01/15/2004	Masahiko Sugimoto	0649-0934P	5046
2292	7590	10/07/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			QUIETT, CARRAMAH J	
			ART UNIT	PAPER NUMBER
			2612	

DATE MAILED: 10/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/757,466

Applicant(s)

SUGIMOTO, MASAHIKO

Examiner

Carramah J. Quiett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 15 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-8 is/are allowed.
- 6) ☒ Claim(s) 1, 4 and 5 is/are rejected.
- 7) ☒ Claim(s) 2-3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/13/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS), filed on 01/12/2004, has been placed in the application file, and the information referred to therein has been considered as to the merits.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because it has two paragraphs. Also, in the second paragraph, terms such as "synthesizing process means" and "control means" are legal phraseology. As stated above, this should be avoided. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fossum et al. (U.S. #6,137,100) in view of Murakami (JP Pub. #06-178198).

As for claim 1, Fossum discloses a the solid-state imaging element has a plurality of pixels (col. 1, lines 5-7), and each of the pixels is divided into a main pixel (fig. 1B, 110), which has a first area and read a high-sensitivity image signal, and a sub-pixel (fig. 1B, 112, 114, or 116), which has a second area which is smaller than the first area, and read a low-sensitivity image signal (col. 2, lines 38-59). Fossum teaches that image quality and signal-to-noise ratio of the color image signal can be improved by changing the effective area of each color pixel (col. 1, lines 20-32) or applying separate gains for separate spectral band channels (col. 1, lines 65-66).

Although Fossum discloses a means for the signal processing of an image while it is readout from the sensor in order to improve the quality of the image, he does not teach a digital camera comprising: a diaphragm: which controls an amount of incident light by varying a stop-amount; a controller, which individually controls a gain amount of the high-sensitivity image signal and a gain amount of the low-sensitivity image signal in response to the stop-amount of the diaphragm; and a synthesizing processor, which synthesizes the controlled high-sensitivity image signal and the controlled low-sensitivity image signal.

Murakami, on the other hand, discloses a solid-state image pick up device that comprises: a camera lens (fig. 2, ref. 1) with a diaphragm, which controls an amount of incident light by varying a stop-amount (abstract); a solid-state imaging element (fig. 2, ref. 3a, 3b, 3c), which receives the incident light passed through the diaphragm. Murakami's solid-state image pick up device also includes a storage device (fig. 2, ref. 6), which stores stop value information to individually control a gain amount of the high-sensitivity image signal and a gain amount of the low-sensitivity image signal in response to the stop-amount of the diaphragm (abstract, paragraph 9); an processing/encoding circuit (fig. 2, circuit 7), which synthesizes the controlled high-sensitivity image signal and the controlled low-sensitivity image signal, and outputted as a video signal (paragraph 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Murakami's solid-state image pickup device with Fossum's solid-state image sensor for correcting the change of the sensitivity of a solid-state image pickup element due to the stop value of a camera lens (abstract).

As for claim 4, Fossum further teaches an image sensor with a plurality of pixels arranged in an array shape (claim 1). Claim 4 is dependent on the limitations of claim 1. Therefore, the reason for combining Fossum with Murakami is explained in the rejection for claim 1 above.

As for claim 5, Fossum also disclose an image sensor wherein each of the pixels is divided into the main pixel and the sub-pixel by an element-separating band deviated from the center of the pixel. This feature is clearly shown in figures 1B and 1D.

Allowable Subject Matter

7. Claims 2-3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

For claim 2, the prior art does not teach or fairly suggest the digital camera according to claim 1, wherein the controller increases the gain amount of the high-sensitive image signal and decreases the gain amount of the low-sensitive image signal when the diaphragm is set to an open side, whereas the controller decreases the gain amount of the high-sensitive image signal and increases the gain amount of the low-sensitive image signal when the diaphragm is set to a small-stop side.

For claim 3, the prior art does not teach or fairly suggest the digital camera according to claim 1, wherein when the controller increases the gain amount of the low-sensitive image signal, the controller decreases a synthesizing ratio of the low-sensitive image signal synthesized with the high-sensitive image signal.

8. Claims 6-7 are allowed.

For claims 6-7, the prior art does not teach or fairly suggest a digital camera comprising: a diaphragm, which controls an amount of incident light by an stop-amount; a solid-state imaging element, which receives the incident light passed through the diaphragm, and the solid-state imaging element has a plurality of pixels, and each of the pixels is divided into a main pixel, which has a first area and read a high-sensitivity image signal, and a sub-pixel, which has a second area which is smaller than the first area, and read a low-sensitivity image signal; and a controller, which operates in such a manner the smaller a stop amount of the diaphragm

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becomes, the smaller a synthesizing ratio of the low-sensitive image signal with respect to the high-sensitive image signal is decreased.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

United States Patents:

5,119,181	Perregaux et al.	5,530,474	Takei
5,534,822	Takeda	6,545,710	Kubo et al.
6,646,246	Gindele et al.	6,654,056	Perregaux et al.
6,724,426	Berezin et al.	6,747,694	Nishikawa et al.
6,750,437	Yamashita et al.	6,765,611	Gallagher et al.
6,778,216	Lin	6,236,434	Yamada
6,249,317	Hashimoto et al.		

United States Patent Application Publications:

2002/0114531	Torunoglu	2002/0125409	Nagano
2004/0017502	Alderson		

Foreign Patent/ Patent Publications:

JP Pub. 10-136391	Yamada Tetsuo	Pat. JP 2002250860	Nagano
Pat. JP 2002258142	Nagano	Pat. JP 2003333421	Takahashi

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carramah J. Quiett whose telephone number is (703) 305-0566.

The examiner can normally be reached on 8:00-5:00 M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.J.Q.
9-30-2004



NGOC-YEN VU
PRIMARY EXAMINER